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## HAIR COSMETICS

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#### Abstract

#### Problem

Hair cosmetics having excellent hair loss-preventing effect, hair growth-promoting effect, anti-itching effect, anti-dandruff effect and also excellent safety are provided.

#### Means to solve

The aforementioned task is solved by providing hair cosmetics containing anti-inflammatory agents such as allantoin, ichthammol, guaiazulene, \varepsilon-aminocaproic acid, lysozyme chloride, diphenhydramine hydrochloride, etc., and dimethylamine oxide represented by the following formula (I).

## [Structure 1]

$$CH_{3} (CH_{2})_{9} CH_{3}$$

$$CH_{3} (CH_{2})_{11} CHCH_{2} N \rightarrow C$$

$$CH_{3} (CH_{2})_{12} CHCH_{2} N \rightarrow C$$

$$CH_{3} (CH_{2})_{13} CHCH_{2} N \rightarrow C$$

$$(1)$$

#### Claims

1. Hair cosmetics containing anti-inflammatory agents and dimethylamine oxide represented by the following formula (I).

## [Structure 1]

2. Hair cosmetics described in Claim 1, wherein the anti-inflammatory agents are one or more selected from the group of allantoin, ichthammol, guaiazulene, ε-aminocaproic acid, lysozyme chloride, and diphenhydramine hydrochloride.

## Detailed explanation of the invention

[1000]

Technical field of the invention

The present invention is an invention in the technical field relating to cosmetics for scalp and hair (hereinafter, called hair cosmetics). More specifically, the present invention relates to hair cosmetics having excellent effects and also excellent safety, to be used particularly in the fields of medicine, external medicine, or cosmetics.

[0002]

Prior art

There are various kinds of hair cosmetics, and there are hair cosmetic products that correspond to the scalp and hair condition. For instance, hair cosmetic products for improving the existing condition such as hair shedding by preventing itching or dandruff on the scalp according to the state of the scalp have been developed. Today we enter upon an advanced-age society, and scalp problems have increased along with increasing social stress, and the demand for hair cosmetics corresponding to scalp problems has rapidly increased. Factors causing baldness, hair loss, hair thinning, scalp itching, and dandruff, the activation of the male sex hormone in organs such as sebaceous glands of hair roots, etc., excessive sebum secretion, production of peroxide lipid, reduction of blood flow to hair follicles, stress, etc., are examples. In addition, when sufficient nutrients for the growth of healthy and beautiful hair cannot be supplied to hair follicles, it causes hair to become thin or sparse. The reduction of blood flow to hair follicles causes undernourishment and deterioration of excretion function of waste material.

[0003]

From the aforementioned viewpoint, control of the secretion of excessive sebum on the scalp is a necessary point in the improvement of blood flow in at least the scalp and also the resolution of problems of scalp and hair problems. Conventional hair cosmetics contain ingredients which have effects of removing or reducing the factors causing baldness or hair loss. For instance, vitamins such as vitamin B, vitamin E, etc., vasodilators such as Japanese green gentian extract, acetyl choline derivatives, etc., anti-inflammatory agents such as gromwell root extracts, etc., female sex hormones such as cepharanthine, etc., can be added, and hair cosmetics containing the aforementioned ingredients are used for prevention and treatment of baldness, hair loss, and hair thinning.

[0004]

Problem to be solved by the invention

However, if these components are added only in small amounts to hair cosmetics it is difficult to obtain sufficient effects, whereas if they are added in large amounts, the tendency of unpleasant irritation and rubefaction in the applied area and its vicinity is increased, so naturally the addition amount was limited

[0005]

Thus, the task to be solved by the present invention is to provide hair cosmetics having excellent effects and also excellent safety.

[0006]

Means to solve the problem

The present inventors assiduously investigated the task. As a result, it was found that hair cosmetics having excellent hair loss-preventing effect, hair growth-promoting effect, antidandruff, effect anti-itching effect and excellent safety can be provided by mixing anti-inflammatory agents and a specific amine oxide, and the present invention was completed.

[0007]

Namely, the present invention provides hair cosmetics containing anti-inflammatory agents and dimethylamine oxide represented by the following formula (1).

[Structure 2]

$$CH_{5} (CH_{2})_{9} CH_{5}$$

$$CH_{5} (CH_{2})_{11} CHCH_{2} N \rightarrow C$$

$$|$$

$$CH_{3} (CH_{2})_{12} CHCH_{2} N \rightarrow C$$

$$|$$

$$CH_{3} (CH_{2})_{13} CHCH_{2} N \rightarrow C$$

$$|$$

$$CH_{3} (CH_{2})_{13} CHCH_{2} N \rightarrow C$$

[8000]

In addition, the desired effect can be satisfactorily exhibited when the anti-inflammatory agents are one or more selected from the group of allantoin, ichthammol, guaiazulene,  $\epsilon$ -aminocaproic acid, lysozyme chloride, and diphenhydramine hydrochloride.

[0009]

Embodiment of the invention

Hereinafter, an explanation of an embodiment of the present invention will be given. The present invention is hair cosmetics which exhibit the desired effects by combining anti-inflammatory agents with the aforementioned dimethylamine oxide (I).

[0010]

The anti-inflammatory agents which can be mixed in hair cosmetics of the present invention are not particularly restricted if the anti-inflammatory agents suppress the inflammation when applied to skin and do not cause any safety problem when those are used as components of medicines for external application, and their functional order should not be questioned [sic].

[0011]

Concretely, the anti-inflammatory agents for hair cosmetics are suitably selected from allantoin, ichthammol, guaiazulene, \varepsilon-aminocaproic acid, lysozyme chloride, diphenhydramine hydrochloride, berberine chloride, zinc chloride, methyl salicylate, etc.

[0012]

It is preferred to select from allantoin, ichthammol, guaiazulene, ε-aminocaproic acid, lysozyme chloride, and diphenhydramine hydrochloride among the aforementioned anti-inflammatory agents.

[0013]

Allantoin has the chemical name 5-ureidohydantoin, originally found in bovine amnion, and its anti-inflammatory activity, contraction [sic] activity, etc., have been confirmed. In addition, its preparation is known and it is also commercially commercially available.

[0014]

Furthermore, in the present invention, allantoin derivatives such as allantoin acetyl-DL-methionine, allantoin  $\beta$ -glycyrrhetinic acid, chlorhydroxyaluminum allantoinate, allantoin DL-pantothenyl alcohol, allantoin polygalacturonic acid, etc., are also included in the category of allantoin. The preparation methods of these allantoin derivatives are known and they are also commercially available.

[0015]

Ichthammol is generally known as ichthyol, and its anti-inflammatory activity, antiseptic activity, etc., have been confirmed. Its preparation method is known and it is also commercially available.

[0016]

Guaiazulene has the chemical name 1,4-dimethyl-7-isopropylazulene, which is obtained by dehydrogenation of guaiol, and its anti-inflammatory activity, anti-allergic activity, etc., have been confirmed. In addition, its preparation method is known and it is also commercially available.

[0017]

Furthermore, in the present invention, guaiazulene derivatives having anti-inflammatory action such as sodium guaiazulene sulfonate, etc., are also included in the category of guaiazulene. The preparation methods of these guaiazulene derivatives are also known and these derivatives are also commercially available.

[8100]

 $\epsilon$ -Aminocaproic acid has the chemical name 6-aminohexanoic acid and the structure of L-lysine, the amino group at the  $\alpha$  position of which is removed. It is prepared by known methods such as hydrolysis of caprolactam and it is known as a medicine having strong plasmin inhibiting action, and it is also commercially available.

[0019]

Lysozyme chloride has the chemical name N-acetyl muramidoglycanohydrase, and it is a basic polypeptide obtained from egg whites and an enzyme having mucopolysaccharide decomposing activity. It is known that it has anti-inflammatory activity, etc. Its preparation method is known, and it is also commercially available.

[0020]

In addition, diphenhydramine hydrochloride is known as an antihistamine drug, its preparation method is known, and it is also commercially available.

[0021]

These anti-inflammatory agents can be independently used by combining with a specific amine oxide, which will be explained later, but it is also possible to use them in combinations of two or more anti-inflammatory agents.

[0022]

The mixing quantity of the anti-inflammatory agents in the hair cosmetics of the present invention is 0.001-5.0 wt%, preferably 0.01-2.0 wt%, based on the total hair cosmetic.

[0023]

If the mixing quantity is less than 0.001 wt%, sufficient anti-inflammatory effect cannot be exhibited, while if it exceeds 5.0 wt% there is a strong tendency to cause inconvenience in the preparation of the medicine; furthermore, there is a possibility of causing safety problems such as irritation of skin, etc.

[0024]

The aforementioned dimethylamine oxide (I), which is used together with the aforementioned anti-inflammatory agents for hair cosmetics of the present invention, can be prepared by known preparation methods of amine oxides.

[0025]

As an example, it can be prepared by the following process.

[Structure 3]

Key: 1 Catalyst

- 2 Ethanol
- 3 Dimethylamine oxide (1)

[0026]

ì

Dimethylamine oxide (I) prepared by the above method is admixed into hair cosmetics of the present invention via a purification process by an ordinary known purification method such as recrystallization, etc.

[0027]

The mixing quantity of dimethylamine oxide (1) in the hair cosmetics of the present invention is 0.0001-20.0 wt%, preferably 0.05-5.0 wt%.

[0028]

If the mixing quantity is less than 0.0001 wt%, sufficient anti-inflammatory effect can not be exhibited, whereas if it exceeds 20.0 wt% there arises a strong tendency to cause inconvenience in the preparation of the medicine and irritation of skin, etc.

[0029]

Like this, hair cosmetics having excellent hair loss-preventing effect, hair growth-promoting effect, antidandruff and anti-itching effects and excellent safety are provided by combining the aforementioned anti-inflammatory agents with the aforementioned dimethylamine oxide (I).

[0030]

Furthermore, the hair cosmetics of the present invention may be mixed with pharmaceutical components that are used in ordinary hair cosmetics to exhibit the general effects of the pharmaceutical components unless they impair the desired effect of the present invention.

[0031]

For instance, amino acids such as serine, methionine, arginine, etc., vitamins such as vitamin B<sub>0</sub>, biotin, etc., pantothenic acid or its derivatives, glycyrrhetinic acid or its derivatives, and female sex hormones such as estradiol, etc., may be admixed into the hair cosmetics of the present invention.

[0032]

In addition, it is also possible to mix the hair cosmetics of the present invention with plant extracts, e.g., althea extract, coix seed extract, peppermint extract, Guinea pepper extract, aloe extract, Chinese matrimony vine extract, mugwort extract, rice extract, Verbenacea extract,

common broom extract, gentian extract, Salvia militorrhiza root extract, dishcloth gourd extract, Chinese bellflower extract, pine tree extract, sopora root extract, angelica root extract, safflower extract, Japanese barberry extract, betel palm tree extract, eucalyptus extract, Prunella vulgaris extract, achyranthes root extract, gill chamber extract, tea plant extract, licorice root extract, hop extract, chrysanthemum extract, senega extract, sesame extract, Ligusticum officinale extract, cashew extract, kudzu root extract, Flor rosae rugosac extract, saffron extract, rosemary extract, rehmannia root extract, mallow extract, etc.

[0033]

Further, it is also possible to mix the hair cosmetics of the present invention with lactic acid or its alkyl esters, organic acids such as citric acid, etc., protease inhibitors, oils such as olive oil, squalane, liquid paraffin, isopropyl myristate, higher fatty acids, higher alcohols, etc., polyhydric alcohol such as glycerin, propylene alcohol, etc., surfactants, moisture-retaining agent, thickening agent, perfume, antioxidant, UV absorber, bactericide, refreshener, pigment, ethanol, water, etc., in a range where the additives do not impair the desired effect of the present invention.

[0034]

As the form of the present invention hair cosmetics, any form that can be applied to the cuticle, such as liquid, lotion, ointment, etc., can be used without any problem, and if necessary, suitable base components may be added to prepare hair cosmetics of a desired form. In addition, the hair cosmetics of the present invention can be used in various fields such as drugs, external drugs, cosmetics, etc.

[0035]

The hair cosmetics of the present invention can be used for treatment and prevention of, e.g., hair loss, dandruff, itching, etc. For instance, these hair cosmetics can be widely used for the treatment and prevention of male baldness, male alopecia, female pervasive alopecia, and the treatment of alopecia areata. The objectives shown here are illustrative, and the ailments to which the hair cosmetics of the present invention are applicable are not limited to the aforementioned objectives only.

[0036]

The hair cosmetics of the present invention are administered by dose for topical application such as direct coating or spraying, etc. Furthermore, in the hair cosmetics of the present invention, the absorption of ingredients through the skins is accelerated by the

combination of the aforementioned indispensable ingredients. The dose of the present invention hair cosmetics should be suitably decided according to age and degree of hair loss of individuals, etc., and the form of the preparations, but the dose for adults is generally 0.001-100 mg/day, preferably 0.1-10 mg/day/kg of body weight, and it is administered 2-4 times a day by dividing the dosage.

[0037]

Application examples

Hereinafter, the present invention will be explained in detail with application examples, but the technical scope of the present invention is not limited to these application examples only. Before disclosing the application examples, first the test for the hair growth-promoting effect in the application examples will be explained.

[0038]

## 1. Test for hair growth-promoting effect

Trichogram test was conducted for examining the hair growth-promoting effect of hair cosmetics of the present invention. Each group for testing the hair growth-promoting effect in comparative examples and application examples was composed of 10 males. The test application period was 4 months, and a sample was coated on the scalp twice a day at 2-4 mL each time. Fifty hairs were randomly pulled from the scalp of each male just before coating and 3 months after coating, and the root of the pulled hairs was examined by microscope, and then the ratio (%) of hair root resting period was calculated from the state of the hair root. The variation in the ratio (%) of the hair root resting period before and after sample coating was evaluated by the following standard.

[0039]

Evaluation standards

Notable effect: The ratio of hair root resting period was decreased by at least 30%.

Effective: The ratio of hair root resting period was decreased by at least 20%.

Weak effect: The ratio of hair root resting period was decreased by at least 10%.

No effect: The ratio of hair root resting period was decreased by less than 10%.

The hair growth-promoting effect was designated as effective when the variation in the ratio of the hair root resting period was evaluated as effective in more than 50% of the test males otherwise evaluated as ineffective.

[0040]

## 2. Test for hair loss-preventing effect

The hair loss-preventing effect was evaluated by number of fallen hairs before and after hair washing. Each group for testing the hair loss-preventing effect in application examples and comparative examples was composed of 10 males. The test period was 6 months, and the first two months were a period without sample coating while the last four months were a period of sample coating. In the sample coating period, a sample was coated on the scalp twice a day at 2-4 mL for each time. During the testing period, the hair was washed every other day, the fallen hairs were recovered, and then the hairs collected for one week were counted.

[0041]

The number of fallen hairs in each period was expressed as follows: the number of fallen hairs in a total of 8 times during two months before a sample was coated and the number of fallen hairs for a total of 8 times during the last two months in the sample coating period were collected for each period, and they are expressed as the number of fallen hairs per time in the form of average value ± standard deviation.

[0042]

The effect was evaluated by the difference from the average value of each period as follows:

Evaluation standards

- Number of fallen hairs was decreased by at least 70, and a notable effect was confirmed.
- Number of fallen hairs was decreased by at least 40, and a decent effect was confirmed.
- ±: Number of fallen hairs was decreased by at least 10, and a slight effect was confirmed.
- -: Number of fallen hairs was decreased by less than 10, and it was ineffective.

  The hair loss-preventing effect was evaluated as effective when the number of persons with at least + in the effect evaluation was more than 50%, and others were evaluated as ineffective.

[0043]

3. Test for dandruff- and itching-preventing effect

Dandruff and itching of the scalp of each person after the test period was ended were examined, and the degree of dandruff and also the degree of itching were compared. Each group for testing the effect in the comparative examples and application examples was composed of 10

males who complained of dandruff and itching. The sample coating period was 3 months, and during this period the hair was washed once a day using a chemical-free shampoo, and a sample was coated on the scalp twice a day at 2-4 mL each time. The degrees of dandruff and itching for each person were expressed by the following scores.

### [0044]

## Dandruffscore

- 3: Dandruff was very plentiful.
- 2: Dandruff was plentiful.
- 1: Dandruff was present but not plentiful.
- 0: Almost no dandruff

## [0045]

#### Itching score

- 3: Strong itching
- 2: Itching
- 1: Little itching
- 0: No itching

## [0046]

## Application Examples 1-7, Comparative Examples 1-7

Lotions with ingredients shown in Table 1 (Application Examples 1-7, Comparative Examples 1-7) were prepared by the method described later, and the aforementioned tests were conducted on the lotions.

[0047]

Table 1

			0	HERRY						(a)	रक्त <b>ा</b>		<u> </u>	
(3) REDSEN	1	2	,	4	б	6	7	1	2	3	4	· 5	6	7
ツォチルフミンオキシド (1) (4)	1. 0	_	-	-	-	-	_	1. 0	1. 0	1. 0	2 0	2. 0	3. 0	3. 0
792142 (5)	_	1. 0	-	-	-	-	_	3. 0	_	_	_			1. 0
199E-N (6)	_	_	1. 0		1	-		_	l. 0		-	_		_
サイナズレン (T)	_			1. C	-	-	_	_	_	Ø 001	_	_		0. 2
イブシロンフミノカプロンな 8	1	-	-	-	1. 0	-	-	_		-	2. 0	-	_	
地化リゾチウム(う)		_	_	-	-	1. 0	-	_	_	_	_	О. Б		
塩化ジフェンヒドラミン(1)	_	_	-	-	-	-	1. 0	_	_		_	_	5. 0	
グリセリン (1) (2)	1. 0	1. 0	1. 0	i. c	1. 0	1. 0	1. 0	1. 0	1. 0	1. 0	1. 0	1. 0	1. 0	
受化セマン治エデレンオキサイド (40モル) 付成的	0. 5	c. 5	0. 5	0. 5	0. 5	0. 5	0. 5	0. 5	0. 5	0, 5	0, 5	0. 5	0. 5	├
(a)	AR	22	24.2	722	<b>3</b>	語	建纸	进	細	紐	細	紐	透透	通風
12 (14) (15) (15) (15) (15) (15) (15) (15) (15	湖区	22	建筑	22	20	<b>A</b> 2	2625	<b>A12</b>	202	础	ÄR	紐	通出	遊戲
95%291-A (16)	<b>50.0</b>	80.0	50,0	82.0	63.0	8070	EU 0	60,0	62.0	50.0	50.0	80.0	80.0	60.0
1532/k (17) (18)	EC.E	T.T	63	KA	53	<b>538</b>	民馬	飛廊	现	那	既為	那部	形部	灰州

Comparative Example Application Example Key: 1

- 2 3 4 Mixing components
  Dimethylamine oxide (I)
- Allantoin 5

- 6 Ichthammol
- 7 Guaiazulene
- 8 ε-aminocaproic acid
- 9 Lysozyme chloride
- 10 Diphenhydramine hydrochloride
- 11 Glycerin
- Hardened castor oil-ethylene oxide (40 moles)
- 13 Malic acid
- 14 Fragrance and pigment
- 15 Appropriate quantity
- 16 95% Ethanol
- 17 Purified water
- 18 Balance

## [0048]

## Preparation method

Each chemical, glycerin, hardened castor oil-ethylene oxide (40 mol) adduct, malic acid, and fragrance in the given amounts were dissolved in 95% ethanol (ethanol phase). Then, pigment was dissolved in purified water, and it was added to the ethanol phase and stirred to obtain a transparent liquid-form lotion. The results of the aforementioned tests are shown in Table 2 (hair growth-promoting effect test). Table 3 (hair loss-preventing effect test), and Table 4 (dandruff- and itching-preventing effect test).

[0049]

Table 2

	(.)	(3) %	③ 養毛効果の評価			
	# (1)	サ製著な効果	<b>S</b> 効果あり	りない効果	分類果なし、	
(S)	比較例1 比較例2 比較例3 比較例4 比取例5	1 0 0 0 0	1 0 1 0 0 0	2 0 1 0 2 0 3 0 1 0	6 0 8 0 8 0 7 0 8 0	無数 無数 無数 無数
• (	比较数6 比较数7	0	10	10	8 0 7 0	無効
(N)	英語係1 実施例2 実施例3	2 0 1 0 3 0	5 0 5 0 5 0	2 0 2 0 1 0	1 0 2 0 0	有效有效有效有效有效
	実箔例 4 実施例 5 実施例 5 実施例 7	3 0 2 0 4 0 3 0	4 0 5 0 4 0 5 0	2 0 2 0 2 0 1 0	1 0 1 0 0 1 0	有効有効

Key:	l 2	Group Number (%) of persons who had decreased number of resting-period hair roots
	3	Evaluation of hair growth promoting effect
	4	Notable effect
	5	Effective
	6	Weak effect
	7	No effect

- Comparative Example
  Application Example
  Ineffective 8 9
- 10
- Effective 11

[0050]

Table 3

į		(2)	技毛本質の数分	0者 (%)		3 ・脱毛防止効果の
	# (1)	++	+	±	_	辞価
4)	比较例 7 比较例 3 比较例 4 比较例 5 比较例 5 比较例 5 比较例 7	2 0 0 0 0 0 0	2 0 1 0 0 1 0 1 0 0	1 0 1 0 3 0 2 0 1 0 2 0 2 0	5 0 8 0 8 0 7 0 8 0 8 0 7 0	数
(5)	定性例1 定性例2 定性例3 定性例4 实性例6 实性例7	3 0 2 0 3 0 4 0 2 0 4 0 5 0	5 0 5 0 4 0 3 0 5 0 5 0 4 0	1 0 2 0 2 0 2 0 2 0 1 0	2 0 1 0 1 0 1 0 0	有效 有效 有效 有效 有效 有效 有效

Keyt

- Number (%) of persons who had decreased number of fallen hairs
  Evaluation of hair loss-preventing effect
  Comparative Example
  Application Example
  Ineffective Group
- 2
- 4
- 5
- 6
- Effective 7

[0051]

Table 4

-	(૧)	(3) mbh
•	(平均スコア)	(平均スコア)
- m 21 1	1. 5	1.5
1	2. 3	1.5
	2. 4	2.0
	1.8	1.3
	2. 0	1. 6
	1. 7	1.6
	1.9	1.4
	0. 8	0.7
	0. 5	0.8
	0. 8	0.8
	0. 4	0. 6
=	0. 6	0. 7
	0. 7	0.4
• • • • • • • • • • • • • • • • • • • •	0. 5	0.5
	群 的	(平均スコア)

Group Key:

- Dandruff (average score)
- Itching (average score) 3
- Comparative example 4
- Application Example 5

[0052]

According to these results, hair growth-promoting effect, hair loss-preventing effect, and dandruff and itching-preventing effect were notably confirmed in lotions of the application examples, which were prepared by mixing any of allantoin, ichthammol, guaiazulene, ε-aminocaproic acid, lysozyme chloride, and diphenhydramine hydrochloride as anti-inflammatory agents with dimethylamine oxide (I), but even when a sufficient amount of the anti-inflammatory agents or dimethylamine oxide (I) was mixed, the lotions of comparative examples prepared by using only the anti-inflammatory agents or dimethylamine oxide (I) had results considerably inferior to the above-mentioned application examples.

[0053]

Namely, it was elucidated that the hair growth-promoting effect, hair loss-preventing effect and dandruff- and itching-preventing effect were notably confirmed in the present invention hair cosmetics prepared by combining the aforementioned anti-inflammatory agents with dimethylamine oxide (I). This indicates that the desired effects can be attained in the hair cosmetics of the present invention even when small amounts of effective components are used and unpleasant irritation and rubefaction of the coated area and its vicinity, which are caused by mixing a large amount of anti-inflammatory agents, can be prevented.

### [0054]

Hereinafter, prescription examples of other hair cosmetics of the present invention are shown.

Application Example 8: Lotion	
	Mixing quantity (wt%)
95% Ethanol	50.0
Dimethylamine oxide (I)	0.5
Allantoin	2.0
Diphenhydramine hydrochloride	0.5
•	3.0
Sodium pyrrolidonecarboxylate	adduct 0.5
Hardened castor oil-ethylene oxide (40 mol)	appropriate quantity
Succinic acid	appropriate quantity
Fragrance and pigment	••
Purified water	balance

#### [0055]

## Preparation method

A transparent liquid-form lotion was obtained by dissolving dimethylamine oxide (I), hardened castor oil-ethylene oxide (40 mol) adduct, allantoin, diphenhydramine hydrochloride, and fragrance in 95% ethanol while dissolving other components in purified water, adding the latter to the former, and stirring.

## [0056]

When the aforementioned tests were conducted on the hair cosmetics of the present invention, the hair growth-promoting effect, hair loss-preventing effect, and dandruff- and itching-preventing effect were notably confirmed.

## [0057]

Application Example 9: Lotion (Mixing components)

Mixing quantity (wt%)

95% Ethanol

90.0

Dimethylamine oxide (I)	3.0
ε-aminocaproic acid	1.0
1,3-Butylene glycol	0.5
Hardened castor oil-ethylene oxide (50 mol) adduct	0.5
Sodium lauryl sulfate	0.5
Lactic acid	appropriate quantity
Sodium lactate	appropriate quantity
Fragrance and pigment	appropriate quantity
Purified water	balance

## [0058]

## - Preparation method

A transparent liquid-form lotion was obtained by dissolving hardened castor oil-ethylene oxide (50 mol) adduct and fragrance in 95% ethanol, adding purified water, adding the other components, and stirring to dissolve them.

## [0059]

When the aforementioned tests were conducted on the hair cosmetics of the present invention, the hair growth-promoting effect, hair loss-preventing effect, and dandruff- and itching-preventing effect were notably confirmed.

## [0060]

Application Example 10: Milky lotion hair cosmetic	:s
(Mixing components)	Mixing quantity (wt %)
(Phase A)	
Hardened castor oil-ethylene oxide (60 mol) adduct	2.0
Glycerin	5.0
Dipropylene glycol	10.0
1,3-Butylene glycol	5.0
Polyethylene glycol	5.0
(Phase B)	
Cetyl isooctanate	10.0
Squalane	10.0
Petrolatum	2.0
Propylparaben	2.0
Dimethylamine oxide (I)	2.0

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